



















SDSS-II WBS - DA Upgrade

as of 02/14/05

	WBS	Task Name
	3	New Development
	3.4	Data Acquisition Upgrade
	3.4.1	Remote Milestones
	3.4.2	Functional Specifications
	3.4.2.1	Update functional specifications with new requirements and goals
	3.4.2.2	Vet updated specs with relevant parties (MC, developers, APO staff)
	3.4.2.3	Functional specs approved (milestone)
	3.4.3	Hardware Procurements
	3.4.3.1	Procure (2) Motorola MVE5500 PowerPC cards and transition modules for prototyping
	3.4.3.2	Procure (17) Motorola MVE5500 PowerPC cards and transition modules for new DA system
	3.4.3.3	Specify hardware requirements for sdsshst replacement
	3.4.3.4	Procure (2) dual-processor PCs for sdsshst replacement
	3.4.3.5	New "lhost" machine installed at APO
	3.4.3.6	Set up lhost at APO
	3.4.3.7	Procure VxWorks license for PowerPC platform
	3.4.3.8	Procure (5) 250GB IDE disks for prototyping
	3.4.3.9	Procure (2) 8-bay drive chassis'
	3.4.3.10	Procure (18) DLT tape drives to replace current drives? (placeholder)
	3.4.3.11	Procure new networking gear (Gb switch)
	3.4.4	Software Development
	3.4.4.1	VxWorks Environment
	3.4.4.1.1	Get VxWorks test environment set up at FNAL
	3.4.4.1.2	Get VME board booting in VxWorks environment
	3.4.4.1.3	Build existing DA code in VxWorks environment to verify and as necessary modify work scope
	3.4.4.2	VxTools Mods
	3.4.4.2.1	Map registers and rest of VxTools (other than DMA)
	3.4.4.2.2	Write new DMA driver for VCI+ and scrolling display
	3.4.4.3	Emulation Code Development
	3.4.4.3.1	Develop design document for PTVME emulation scheme
	3.4.4.3.2	Review and sign-off of proposed PTVME emulation scheme
	3.4.4.3.3	Develop code to emulate PTVME functionality
	3.4.4.3.4	Emulation code mods complete
	3.4.4.4	Archiver Mods
	3.4.4.4.1	Modify both sides of archiver to write to remote side disk
	3.4.4.5	Murmur Portability Check
	3.4.4.5.1	Port murmur to Linux box at FNAL and compile
	3.4.4.5.2	Murmur ported to Linux successfully, or additional scope of work defined
	3.4.4.6	Network Time Protocol (NTP)
	3.4.4.6.1	Port NTP to VxWorks, if necessary
	3.4.4.6.2	ftelnet Tests
	3.4.4.6.2.1	Port ftelnet to Linux at APO and test
	3.4.4.7	Host Code Modifications
	3.4.4.7.1	Specify software environment (compiler/distribution) for lhost.
	3.4.4.7.2	Vet software specs for lhost machine
	3.4.4.7.3	Port current development environment (support) for MCP and TPM to lhost
	3.4.4.7.4	Port current set of host code to lhost (e.g., tccmon, watcher, webserver, etc.)
	3.4.4.7.5	Install murmur on lhost at FNAL
	3.4.4.7.6	Install ftelnet on lhost at FNAL
	3.4.4.7.7	Endian conversion on lhost
	3.4.4.7.8	lhost ready for testing at FNAL
	3.4.4.8	TPM Modifications
	3.4.4.8.1	Move TPM display monitor to commish (TPM dm) (real-time TPM display)
	3.4.4.8.2	TPM move to commish complete
	3.4.4.9	IOP code modifications
	3.4.4.9.1	Critical IOP Changes
	3.4.4.9.1.1	endNight Rewrite
	3.4.4.9.1.1.1	Develop functional requirements for endNight rewrite
	3.4.4.9.1.1.2	Develop design proposal for endNight rewrite
	3.4.4.9.1.1.3	Vet design proposal for endNight rewrite

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	WBS	Task Name
	3.4.4.9.1.1.4	Rewrite endNight.
	3.4.4.9.2	Potential IOP Changes
	3.4.4.9.2.1	Teamster
	3.4.4.9.2.1.1	Write gangs directly on Unix side ()
	3.4.4.10	Potential Astroline Mods
	3.4.4.10.1	Improve stretch on scrolling displays (requires code mods on VME side).
	3.4.5	DA Prototype Development and Testing at APO
	3.4.5.1	Ship MVE5500 board to APO and install in crate
	3.4.5.2	Test NTP and TCC broadcast functionality
	3.4.6	Test Stand Development
	3.4.6.1	Verify that FNAL simulation environment is functional
	3.4.6.2	Modify existing test stand to incorporate hot-swap drives
	3.4.6.3	FNAL test stand work complete
	3.4.7	DA System Testing at FNAL
	3.4.7.1	Full system commissioning tests at FNAL to verify operational readiness of new DA
	3.4.7.2	New DA system testing at FNAL complete
	3.4.8	DA Shipment to APO
	3.4.8.1	Prep and pack DA system hardware for shipment to APO
	3.4.8.2	Ship DA hardware to APO
	3.4.8.3	New DA hardware arrives at APO
	3.4.9	APO Site Preparations
	3.4.9.1	Assess impact of new DA system on APO infrastructure (power, cabling, etc.)
	3.4.9.2	Impact of new DA on APO infrastructure deemed acceptable
	3.4.10	Final APO Installation
	3.4.10.1	Reconfigure 2.5m networking at APO
	3.4.10.2	Install new DA hardware and code at APO
	3.4.11	DA Commissioning Plan
	3.4.11.1	Develop commissioning plan for DA installation at APO
	3.4.11.2	Review and approve DA commissioning plan
	3.4.11.3	DA commissioning plan complete
	3.4.12	APO Commissioning
	3.4.12.1	Start DA commissioning at APO
	3.4.12.2	Commissioning tests at APO
	3.4.12.3	System handoff to APO staff
	3.4.12.4	New DA ready for routine operations
	3.4.13	Final As-built Documentation
	3.4.13.1	Finish as-built DA system documentation
	3.4.13.2	Update observing procedures
	3.4.13.3	Update operating procedures
	3.4.14	FNAL Infrastructure Upgrade
	3.4.14.1	Meet with FCC personnel to define work scope for incorporating hot-swap drives
	3.4.14.2	Procure hot-swap chassis for testing at Fermilab
	3.4.14.3	Develop prototype hot-swap disk system and test at FCC
	3.4.15	sdssmth Upgrade
	3.4.15.1	Merge MOP and IOP back together
	3.4.15.2	Port MOP onto new "host"
	3.4.16	FNAL Tape Drive Replacement
	3.4.16.1	Modify FNAL system to read data from DLT tape drives or hot-swappable drives (placeholder)
	3.4.16.2	Adapt FNAL inventory system to accommodate disk drives and DLT tapes (placeholder)